# Milan Bradonjić

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## Postdoctoral Position

10/2008-Present **Los Alamos National Laboratory**
T-5 and CNLS. Host Dr. Aric Hagberg.

## Education

09/2004-09/2008 **University of California, Los Angeles**
Ph.D. Electrical Engineering, 4.00/4.00.
Minor Theoretical Computer Science 4.00/4.00.
Advisors: Allon Percus MATH, Vwani Roychowdhury EE.
Ph.D. Thesis "Models and Tools for Large Graphs with Imposed Structural Properties".

09/2003-09/2004 **Mathematical Institute of Serbian Academy of Sciences and Arts**

10/2002-07/2003 **Swiss Federal Institute of Technology, EPFL**
Predoctoral School in Communications Systems and Computer Sciences.

10/1997-07/2002 **University of Belgrade**
Dipl. Eng. Electrical Engineering, GPA 9.90/10.00.
Best Graduate Award Recipient.

## Research Interests

My research focuses on random graph theory, applied probability and statistics, and game theory. I have worked on the limiting behavior and percolation on random discrete structures, as well as algorithms and game theory on graphs. I have initiated and conducted research across disciplines. Applications of my research include the areas of wireless communications, the Internet and social networks analysis, epidemic networks and economic markets. The list of my collaborators includes senior and junior researchers from: Discrete Mathematics, Theoretical Computer Science, Electrical Engineering, Statistics, Applied Mathematics, and Statistical Physics.

## Research Grants

12/2009 "Dynamics through randomness: New mathematical approaches for complex networks", funded by the Department of Energy ASCR program at the level of $\$936,000$. I co-authored this grant proposal with Aric Hagberg (PI), Mac Hyman and Allon Percus, and I am currently an investigator on the project.

## Research and Teaching Experience

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| 10/2008-Present | Postdoctoral Research Fellow, Mathematical Modeling and Analysis Group, and Center for Nonlinear Studies. Los Alamos National Laboratory. |
| 07/2007-10/2007 | Summer Internship, Los Alamos National Laboratory. |
| 2004-2008 | Research Assistant, UC Los Angeles. |
| 2005,2006,2007 | Teaching Assistant UC Los Angeles: Introduction to Stochastic processes, Principles of Feedback Control, Introduction to Communication Systems |
| 09/2003-09/2004 | Research Assistant, Mathematical Institute of Serbian Academy of Sciences and Arts. |
| 08/2002-11/2002 | Visiting Researcher, EECS, UC Berkeley. |
| 2000-2002 | Teaching Assistant, University of Belgrade, and Petnica Research Science Center. |
| 10/2001-12/2001 | Undergraduate Internship, Zentrum für Neue Studienformen, Germany. |

## Honors and Awards

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| 2006 | Excellence in studies, Departmental Fellowship, UCLA. |
| 2002 | Best graduate award, "Fond Sreten Nedeljković". |
| 2002 | The Royal Dome Karadjordjević Fellowship. |
| 2002 | "ETF BAFA Award", exceptional success during studies. |
| 2000 | The Norway Royal Academy Fellowship. |
| 1996-2002 | The Serbian Ministry of Science and Technology Fellowship. |
| 1995-1997 | Highest results in Mathematics, Fellowship. |

## PUBLICATIONS

### Refereed CONFERENCES and WORKSHOPS

1 Milan Bradonjić, Aric Hagberg, Nicolas W. Hengartner, Allon G. Percus, "Component Evolution in General Random Intersection Graphs". *Proceedings of the 7th Workshop on Algorithms and Models for the Web-Graph (WAW2010).* Lecture Notes in Computer Science, Vol. 6516, pp. 36-49, 2010.

2 Milan Bradonjić, Robert Elsässer, Tobias Friedrich, Thomas Sauerwald, Alexandre Stauffer, "Efficient Broadcast on Random Geometric Graphs", *Symposium on Discrete Algorithms, SODA2010*, pp. 1412-1421.

3 Milan Bradonjić, Gunes Ercal-Ozkaya, Adam Meyerson, Alan Roytman, "On the Price of Mediation", *10th ACM Conference on Electronic Commerce, EC09*, 2009, pp. 315-324.

4 Milan Bradonjić, Eddie Kohler, Rafail Ostrovsky, "Near-Optimal Energy Consumption for Radio Synchronization", *5th International Workshop on Algorithmic Aspects of Wireless Sensor Networks Algosensors*, Rhodes, Greece, 2009, pp. 15-28.

5 Milan Bradonjić, Tobias Müller, Allon Percus, "Coloring Geographical Threshold Graphs", *Proceedings of the Fifth Workshop on Analytic Algorithmics and Combinatorics (ANALCO 09)*, pp. 11-16, 2009, pp. 11-16.

6 Milan Bradonjić, Aric Hagberg, Allon G. Percus, "Giant Component and Conenctivity in Geographical Threshold Graphs", *Proceedings of the 5th Workshop on Algorithms and Models for the Web-Graph (WAW2007).* Lecture Notes in Computer Science, Vol. 4863, pp. 209-216, 2007.

7 Milan Bradonjić, Joseph S. Kong, "Wireless Ad Hoc Networks with Tunable Topology", *45th Annual Conference on Communication, Control and Computing, Allerton* 2007.

8 Milan Bradonjić, Aric Hagberg, Feng Pan, "Performance of Wireless Sensor Networks Under Random Node Failures". Submitted.

**JOURNALS**

9 Milan Bradonjić, Loukas Lazos, "Clustering Methods for Cognitive Radio Networks based on Biclique Graphs". *Ad Hoc Networks, Elsevier.* Accepted.

10 Milan Bradonjić, Tobias Müller, Allon Percus, "Coloring Geographical Threshold Graphs". *Discrete Mathematics & Theoretical Computer Science*, vol. 12, no. 3, pp. 103-114, 2010.

11 Milan Bradonjić, Aric Hagberg, Allon G. Percus, "The Structure of Geographical Threshold Graphs", *Internet Mathematics*, vol. 5, no. 1–2, pp. 113–139, 2008.

12 Andrew Beveridge and Milan Bradonjić, "On the Mixing Time of Geographical Threshold Graphs", *Discrete Mathematics, Elsevier.* In Review.

13 Milan Bradonjić, Eddie Kohler, Rafail Ostrovsky, "Near-Optimal Radio Use For Wireless Network Synchronization". *Theoretical Computer Science.* In Review.

14 Milan Bradonjić, Gunes Ercal-Ozkaya, Adam Meyerson, Alan Roytman, "On the Price of Mediation". *Games and Economic Behavior, Elsevier.* Journal version. Submitted.

15 Milan Bradonjić, Aric Hagberg, Nicolas W. Hengartner, Allon G. Percus, "Emergence of the Giant Component in General Random Intersection Graphs". Submitted.

**WORK in PROGRESS**

16 Milan Bradonjić, Michael Molloy, Guanhua Yan, "Minimizing malware reachability under network constraints".

17 Milan Bradonjić, Albert Cohen, "Stochastic Optimal Control Models for Online Stores".

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| 18 | James Abello, Milan Bradonjić, Aric Hagberg, "Generation of Planar Macroviews of Large Multi-Dimensional Relations". |

## Competitions

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| 2002 | First place in Electrical Circuit Theory in the Electrical Engineering National Competition. |
| 2000 | Third place in Mathematics in the Electrical Engineering National Competition. |
| 1998 | First place in Mathematics in the Electrical Engineering National Competition. |
| 1996 | First place in the National Mathematics Olympiad. |
| 1995 | Second place in both the National and Federal Mathematics Olympiads. |
| 1994 | First place in the National Mathematics Olympiad. |
| 1993, 1996, 1997 | Third place in the Federal Mathematics Olympiad. |
| 1993 | First place in the National Mathematics Olympiad. |

## Invited Talks

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| 01/2011 | Center for Discrete Mathematics and Theoretical Computer Science, DIMACS, Rutgers University, NJ. |
| 12/10, 12/09 | Center for Non-Linear Studies, Los Alamos National Laboratory, Los Alamos, NM. |
| 02/2009 | Los Alamos Days Conference, Arizona State University, Tempe, AZ. |
| 01/2009 | Center for Discrete Mathematics and Theoretical Computer Science, DIMACS, Rutgers University, NJ. |
| 01/2009 | Stern School of Business, New York University, New York City, NY. |
| 01/2009 | Yahoo Inc. New York City, NY. |
| 06/2008 | The Institute Eurandom, the Department of Mathematics and Computer Science, Eindhoven University of Technology, The Netherlands. |
| 10/2007 | "Discrete Applied Math Seminar – Department Colloquium", Illinois Institute of Technology, Chicago, IL. |
| 08/2007 | "Physics of Algorithms Series", Los Alamos National Laboratory, NM. |
| 04/2006 | "Workshop on Probabilistic Combinatorics and Algorithms", A Conference in Honor of of Joel Spencers 60th Birthday, DIMACS, Rutgers University, NJ. |

### Poster presentations

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| 06/2010 | "Component Evolution in General Random Intersection Graphs", 21st International Meeting on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms, Vienna, Austria. |

05/2008 "New Directions in Algorithms, Combinatorics and Optimization", Georgia Institute of Technology, Atlanta, GA.

## Skills

Matlab, Mathematica, Maple.

C++, C, Python, Assembly.

NetworkX, LEDA, Boost.

LaTex, HTML, PHP.

Unix/Linux, Mac OS, Windows.

## References

Prof. Allon Percus, allon.percus@cgu.edu, 909-607-0744.
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710 N. College Ave. Claremont, CA 91711.

Dr. Aric Hagberg, hagberg@lanl.gov, 505-665-4958.
Mathematical Modeling and Analysis Group, Los Alamos National Laboratory
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Dr. Nicolas W. Hengartner, nickh@lanl.gov, 505-500-2403.
Information Sciences Group, Los Alamos National Laboratory
B265, Los Alamos, NM 87545.

Prof. James Mac Hyman, mhyman@tulane.edu, 504-862-3433.
Mathematics Department, Tulane University
6823 St. Charles Ave, New Orleans, LA 70118

Prof. Rafail Ostrovsky, rafail@cs.ucla.edu, 310-206-5283.
Computer Science, University of California, Los Angeles
Box 951596, 3732D BH, Los Angeles, CA, 90095-1596

Prof. Vwani Roychowdhury, vwani@ee.ucla.edu, 310-206-4975.
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